

SITUATED LEARNING AND CHANGE IN ORGANISATIONAL PRACTICES: LEARNING THE ROPES OF THE COMMERCIALIZATION OF ACADEMIC RESEARCH

Dagmara Weckowska¹

SPRU – Science and Technology Policy Research
& Business and Management Department
University of Sussex

Conference paper prepared for the OLKC Conference 2012

KEYWORDS: practice-based learning, situated learning, community of practice, strategising, practice change

This paper takes a practice-based perspective on organisational learning and change and sheds light on the social processes that underlie effective changes in organisational practices. In particular, it investigates why and how practices of organisational communities of practice are transformed. I propose that management's strategic practices can shape learning trajectories of organisational communities of practice in order to stimulate transformations in the practices that are in line with the strategic goals. Thus the paper argues that situated learning not only drives emergent changes but also enables deliberate change, planned by organisational strategists. I design a conceptual framework which synthesises insights from studies of situated change, studies of situated learning and studies of strategizing in order to address this proposition. The case studies of four Knowledge Transfer Offices in UK universities have shown that three strategic practices were commonly adopted to shape situated learning in the communities of practice and transformations of practices. Differences in transformative power of these three strategic practices are discussed.

¹ Address: Freeman Centre, Falmer, Brighton, BN1 9QE, United Kingdom,
email: d.m.weckowska@sussex.ac.uk

1 INTRODUCTION

Learning has the power to transform behaviours of individuals. However, when collective learning is scrutinised the relationship between learning and change is less than straightforward. It is thus unsurprising that the previous discussion of the relationship between situated learning in communities of practice and change in community's practices have been inconclusive. As communities of practice facilitate knowledge sharing and knowledge creation they have the potential to advance changes (Wesley and Buysse, 2001; Brown and Duguid, 1991; Brown and Duguid, 1998; Carlile, 2002). However, at the same time communities of practice develop particular understanding of competent action and set of routines and actions. Thus they may perpetuate practices over time or even resist changes (Mittendorff et al., 2006). The aim of this paper is to shed light on why transformations in practices of organisational communities of practice occur. In particular, it is proposed that managerial actions and decisions can shape learning trajectories and subsequently stimulate changes in individual and collective activities within communities of practice.

This research investigated the practice of commercialising academic research in British universities. Commercialisation of academic research is managed by staff in so-called Knowledge Transfer Offices, which have proliferated in the last two decades. The development of commercialisation practice in universities was promoted and subsidised by the UK government and many universities have taken steps to systematically manage exploitation of academic research. Knowledge Transfer Offices, have to constantly adjust their practices to cope with internal challenges (e.g. budget cuts in universities) and opportunities and also to respond to ever-changing external environments. This empirical context is thus suitable for testing of the proposition that changes in practices of organisational communities of practice are instigated and shaped by managerial actions. Case studies of four university Knowledge Transfer Offices (KTOs) provide empirical evidence that illustrates the relationships between (1) strategizing of KTO senior managers, (2) situated learning of KTO commercialisation staff and (3) change in the commercialisation practices.

Next section reviews existing studies shedding light on the relationship between situated learning and evolution of organisational practices and suggest why transformations of a community's practice are not well addressed in the literature. Section 3 goes back to the seminal work of Wenger to identify how managerial actions and decisions can shape learning trajectories and subsequently changes in individual and collective activities. Section 4 reports the methods and section 5 presents analysis of 4 case studies. The findings suggest three strategic practices which enable the management to shape situated learning in communities of practice and transformations in their practices. Section 6 discusses the differences in transformative power of each strategic practice.

2 SITUATED LEARNING AND CHANGE IN PRACTICES

The concept of *situated learning* implies that people learn in a specific cultural and historical context and in a web of social relations in which they are embedded. Learning is therefore seen as “an integral and inseparable aspect of social practice” (Lave and Wenger, 1991: 31) and people are thought to learn in practice by doing and by interacting with others. The literature on situated learning emphasised in particular learning through participation in communities of practice and in networks of practice (Brown and Duguid, 2001; Wenger, 1998). Wenger (1998) and Brown and Duguid (1998; 2001; 1991) played a crucial role in promoting the concepts of “learning in practice” and “communities of practice” in business, management and organisational studies, showing that “learning is an inseparable and integral part of all organisational practices.” (Gherardi, 1999: 113). Previous studies have linked the concept of communities of practice to organisational learning and workplace learning (Brown and Duguid, 1991; Brown and Duguid, 1998; Gherardi and Nicolini, 2000; Yanow, 2000; Handley et al., 2006; Mittendorff et al., 2006) in order to shed light on the importance of social dynamics for professionals’ learning and for sharing and creating knowledge in organisations.

Organisational learning and knowledge creation are one of the drivers of organisational change (Clegg et al., 2005). Thus the concepts of situated learning and communities of practice could shed some light on how and why organisational changes unfold. For example, the situated learning theory and the concept of communities of practice could help examine the impact of changing social relations on initiation of bottom-up changes and enactment of top-down planned changes. There are quite a few studies of situated organisational change, which are based on the assumption that change is a continuous process and therefore every performance of an activity in a particular work context is an occasion for change (Feldman, 2000; Orlikowski, 1996; Orlikowski, 2002; Tsoukas and Chia, 2002). However, these studies have alluded to but have not explicitly used the community of practice framework. Some previous studies argued that communities of practices can advance business innovation (Brown and Duguid, 1991; Wenger, 2000; Wenger and Snyder, 2000; Justensen, 2004; Manville, 2004; Lundkvist, 2004). Nonetheless, in general the studies of the relationship between situated learning and evolving practices remain scarce. Fox pointed out that “community of practice theory tell us nothing about how, in practice, members of a community change their practices and innovate” (Fox, 2000: 860), while Fenwick lamented the “weak analysis of innovation offered by community of practice conception” (Fenwick, 2008: 235).

Arguably the analysis of innovation and change of community’s practice is difficult because of the main epistemological assumption of communities of practice framework; namely, that learning occurs through participation, through mutual engagement with more knowledgeable members of the community (Lave and Wenger, 1991; Wenger, 1998). This assumption hinders explorations of changes in community’s practices in two ways. Firstly, it entails focus on the impact of socio-historical context on learning and pays limited attention to the possibility that individuals can bring new ideas into communities and can make experiences outside of a particular organisational community of practice. In other words, the prevailing focus on social structure over individual agency makes it difficult to explain how changes in communities occur. Secondly, this epistemological assumption entails rejection of the possibility that individuals can reflect on their practices and experiences. The assumption helped to differentiate situated learning from cognitive theories of learning which prevailed in the

1980s. However, 20 years later it seems to be more limiting than productive, in particular when change in community's practices is examined. Similar points were raised by Elkjaer (2009; 2003) in her discussion of social learning theories. Arguably the process of learning through mutual engagement with more knowledgeable, incumbent members of the community can account for passing knowledge to new generations of community's members and reproduction of practice overtime but it is less helpful in understanding how practices of communities are transformed over time.

Wenger (1998: 138) argued that practice can change when one or more members, who "have had experiences that currently fall outside the regime of competence of a community to which they belong", "attempt to change the community's regime so that it includes their experiences". Wenger (1998) argued that new members of a community can bring experiences that trigger collective learning and transform current work practices of a community. However, new experiences could also be made while one is a member of a particular community. People learn through interactions with members of their networks of practice (Brown and Duguid, 2001; Delemaire and Laredo, 2008) and through interactions with members of other communities (Bechky, 2003; Scarbrough and Swan, 2008) and thus the interaction within networks of practices and across communities are potential sources of new experiences which could trigger changes in understanding of competence and subsequently transformation of practice. The early work of Wenger explicitly mentions the role of experience for transformations of practice as well as reflective activities of individuals. This probably results from the fact that pragmatism influenced development of social learning theory (Elkjaer, 2009). However, the ideas have not been embraced by studies taking a social learning perspective.

While I do not question the main epistemological assumption of situated learning, I argue that it has to be broadened in order to explore the transformations in practices of organisational communities of practice. One needs to assume that individuals learn in communities of practices but also that interactions within wider social circles can be a source of new knowledge and new experiences. Moreover, one needs to assume that individuals are able to reflect on their interactions with members of other communities of practice and through reflection develop understanding of implications that the new experience has on practices of the community to which they belong. Reconciliation of socio-cultural and cognitive theories of learning was advocated by others who were interested in how new knowledge is created in communities of practices (Marshall, 2008; Billett, 1996). Moreover, Elkjaer (2003; 2009) suggested that pragmatism, which assumes that thinking-based and practice-based learning coexist, is the learning theory for the future. In summary, I argue that in order to explain transformations in community's practice one need to explore how new experiences are made by members of a community. It is assumed that new experiences are made both through interactions within communities, within networks of practice and across communities of practice as well as through reflection. This research thus takes pragmatism as the epistemological principle underpinning the analysis of learning.

In organisational context, the opportunities to interact with networks of practice and other communities and with objects will be partially dependent on one's job design and

organisational procedures which are under control of the managers. The management can also hire new staff who possibly bring new experiences into organisational communities of practice. The managerial practices and decisions can shape learning trajectories of members of organisational communities of practice (Macpherson and Clark, 2009) and either enable or constrain opportunities to make new experiences. The next section will explicate the process of situated learning in order to identify how managerial actions affect situated learning and transformations in practice.

3 THE MANAGERIAL IMPACT ON LEARNING TRAJECTORIES

According to Duguid (2008), learning in communities of practice involves “deploying through practice the resources – cognitive, material and social” (Duguid, 2008). I propose that the strategic practices of organisational manager can shape learning trajectories of communities of practice when they alter the cognitive, material and social resources available to the community’s members. The concept of strategic practices, or strategizing, emerged from studies taking a practice-based view on organisational strategies (Johnson et al., 2003; Pye and Pettigrew, 2006: and other articles in the respective special issues). This view blurs the boundaries between strategizing and organising by putting the emphasis on the everyday practices involved in strategic reorganisation. Strategizing and organising is thought to be carried out through these strategic practices. Examples of strategic practices include: controlling practices, communicating practices (Whittington et al., 2006), direction-setting practices, monitoring practices and resource allocation practices (Jarzabkowski, 2003). Any of these and/or other managerial practices is believed to be able to change the cognitive, material and social resources available to the community’s members and therefore shape learning trajectories of communities of practice.

It is worth noting that studies of strategizing and organising are typically based on cognitive theories of learning (Jarzabkowski, 2003; Whittington et al., 2006), which stress that the role of managers is to provide information and knowledge which is then processed by employees. On the contrary, the situated learning theory is a social theory of learning and it suggests that the role of managers is to change the patterns of participation and interactions through which learning occurs. These differences stem from different epistemological assumptions of cognitive and social learning theories. As I have argued for reconciliation of these approaches and have accepted pragmatism as an epistemological principle, my approach allows these two different but not contradictory roles of managers to coexist. The next paragraph explains how this is possible.

Wenger argued that “*practices evolve as shared histories of learning*” (1998: 86) and suggested that learning of communities of practice consists of three processes: evolving mutual engagement, evolving understanding of community’s enterprise and evolving community’s repertoire of practice. People evolve existing relations and develop new ones; they negotiate how activities should be performed and they modify the resources (repertoire) available to them to guide their work activities by creating or adjusting tools, routines, procedures, concepts, or stories. Managers can arguably affect evolution

of practice by shaping the learning trajectories of communities of practice, which could be done by shaping any of the three processes. First, with regard to the process of evolving mutual engagement, managers can, for example, allocate resources for hiring a new staff member or subcontracting some work and in this way create opportunities for community's members to develop new relations (i.e. evolve mutual engagement). James (2007) showed that managerial strategies generate on-going changes within

employment relations, which have the effect of reconfiguring and redefining the

identities of the members of communities of practice. I argue that changing relations can also be a source of experiences that will initiate transformations of practice. Second, with regard to the evolving repertoire of practice, the managers can, for example, change control and monitoring practices which will stimulate certain changes in the procedures, tools, routines and other elements of the repertoire of practice.

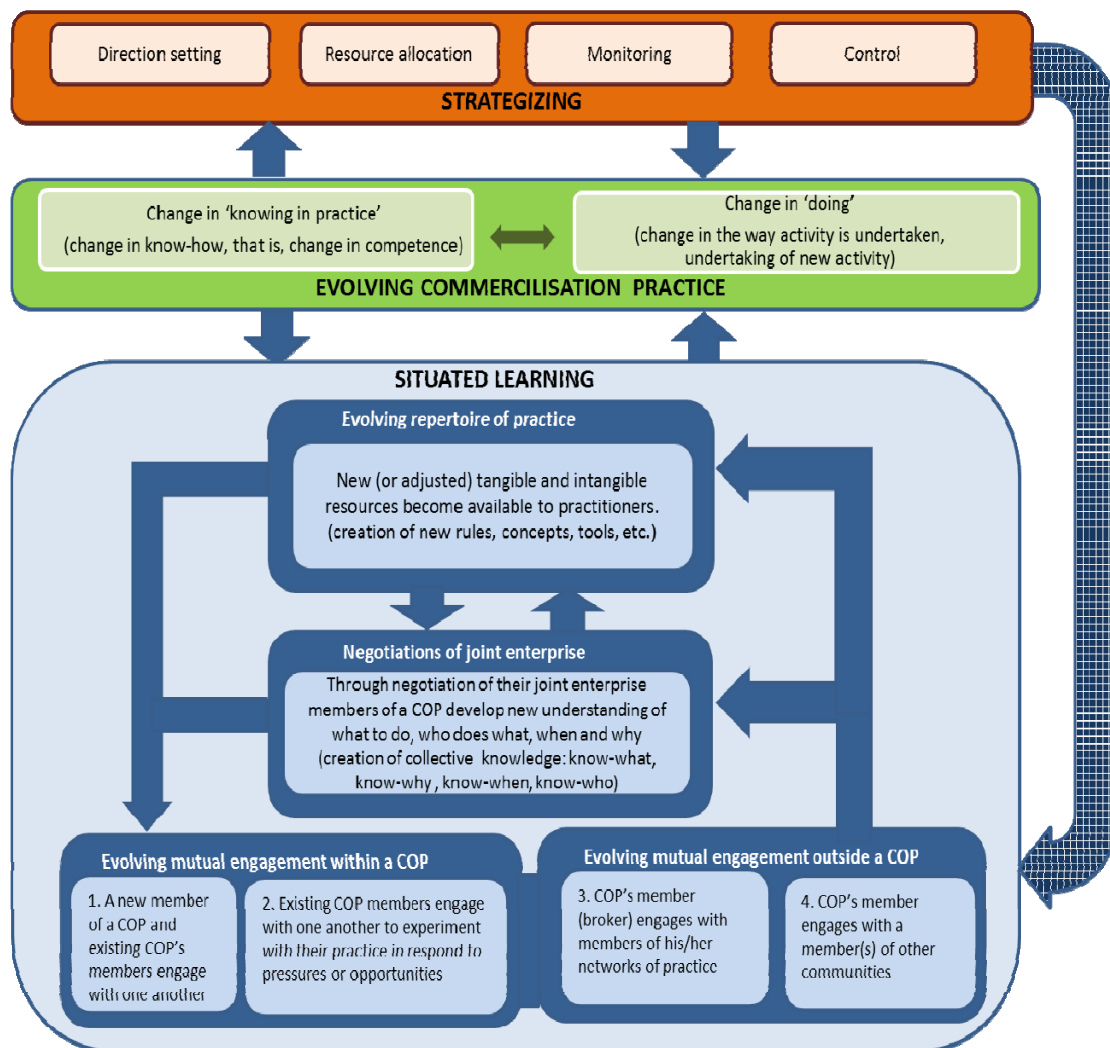
Alternatively, the managers can change the elements of the repertoire and impose them on communities. Previous studies have shown that objects and tools can indeed be designed to encourage specific understanding of how to do things and circumscribe a set of actions (Nicolini et al., 2003; Macpherson and Clark, 2009). Thirdly, the managerial practices such as for example direction setting can shape the process of evolving understanding of community's enterprise. This is not to say that all changes suggested by management alter the competence regime of organisational communities.

Nonetheless, the communities have to respond to new directions and negotiate how actions should be carried out under new circumstances.

In summary, it is proposed that some changes in practices of the communities of practice will be instigated and shaped by managerial practices (i.e. strategizing), which affect community's learning trajectory. In order to test this proposition, the conceptual framework underpinning this research synthesises insights from studies of situated change, studies of situated learning and studies of strategizing. As it is shown on Figure 1, the conceptual framework consist of three main concepts – situated learning in a community of practice, evolving practice of the community and managerial practice of strategizing. The relationship between strategizing and situated learning underpinning transformation in practice is at the centre of the analysis.

This study will address the concern raised by Roberts (2006) about the lack of understanding of how learning in communities is shaped by organisational context and the concerns of Fox (2000) and Fenwick (2008) about limited understanding of how transformations in a community's practices come about.

Figure 1. Conceptual framework



Source: Author's own compilation.

4 METHOD

4.1 Case study selection

The conceptual framework presented above guided the analysis of change in commercialisation practice between 2005 and 2010 in four Knowledge Transfer Offices in UK universities. Four case studies were conducted. It would have been ideal to select a number of cases where change in commercialisation practices occurred. However, the information about KTO practices was not available prior to the fieldwork. It is assumed that evolving commercialisation practices should be related to changes in commercialisation performance (number of internal invention disclosures and licensing deals) and therefore the changes in commercialisation performance were used as an imperfect approximation of changes in commercialisation practice. Data from "Higher Education – Business and Community Interaction" survey was used to calculate the average annual growth rates in the number of disclosures and licenses in the period 2002-2009. Two selected KTOs (cases A and B) have improved on both measures in the given period and two selected KTOs (cases C and D) have worsened on both measures.

It is expected that changes in commercialisation practice in all cases, but the role of learning and strategizing could be different.

4.2 Data collection and analysis

The information about (1) strategizing of senior KTO managers, (2) situated learning of commercialisation staff, and (3) change in commercialisation practice was collected in interviews with key organisational actors in each KTO. Twenty interviews were conducted between Dec 2010 and Feb 2011. The information from the interviews were supplemented with information from internal documents and university websites.

Learning in communities of practice is a difficult concept to operationalize. Some researchers argued it is more productive to focus on routines, practices or networks of practices in order to understand the social relations which are the basis of situated learning rather than on 'identities' and 'participation in communities' (Macpherson and Clark, 2009; Roberts, 2006). Agreeing with this argument, I analysed the structure of work activities and work relations in order to identify the relations that are crucial for situated learning. The commercialisation staff were also asked about the relations which are the source of second opinion, advice and help in solving work-related problems.

Like Gherardi (2000) and Carlile (2002), practice is defined as a system of observable activities that are related to a particular organisational function, and in which knowing and doing are inseparable. This study focuses on commercialisation practice which is comprised of the following activities: scoping for commercialisable intellectual property (IP) coming out of academic research, assessment of intellectual property in terms of patentability and commercial viability, marketing of university's intellectual property, negotiation of license contracts, post-license administration, and formation of spin-out companies. Transformations of practice may involve change in practice, expansion of practice and/or contraction of practice. Change in practice entails a change in the way some activities are performed. The expansion of practice entails undertaking new activities whereas contraction of practice entails discontinuity of some activities.

All interviews were transcribed. Data analysis was supported by the NVivo software. I have first analysed whether commercialisation staff leaned through participation in communities of practice. Next transformations in commercialisation practice were identified and it was explored how each change came about.

5 RESULTS

This section presents finding from four case studies. There were many examples of transformation in commercialisation practices in Cases A and B and only a few in Cases C and D. In cases A and B, learning in communities of practice drives emergent changes but also enables the introduction of planned strategic changes in practices. In cases C and D, learning in communities of practice was predominantly related to

emergent changes. However, it is not the purpose of this study to compare the intensity of transformations in practice or to compare emergent and planned changes. Instead I focus on identifying mechanisms through which organisational strategists instigate learning in communities of practice and changes in practice.

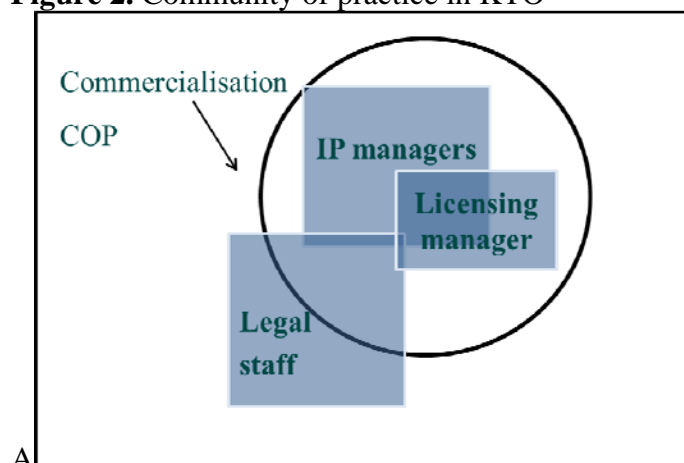
5.1 Case A

The KTO A is an internal unit within the university structure which was established in the late 1990s. The university is located in the south-east of England and belongs to the 1994 Group of research intensive universities.

Commercialisation practice. The commercialisation of academic research is currently carried out by three staff members (2 FTE) – IP manager, junior IP manager and licensing manager –who are part of the Academic Legal Services. They have not been proactively seeking invention disclosures since the number of staff in the KTO was reduced in 2009. The three staff members work together to assess the value of intellectual property resulting from academic research. The IP managers then focus on management of intellectual property rights and preparation of legal contracts such as non-disclosure agreements, license agreement or equity agreements. The licensing manager is responsible for identifying funds for development of inventions, identifying licensees and negotiations with potential licenses. Their marketing activities are limited to preparation of non-confidential materials for potential licensees. They also rarely engage in company formation activities as this commercialisation route is often not the most suitable for the kind of inventions coming out of the university.

Situated learning. The commercialisation staff learns through interactions within the community of practice. The analysis of work activities and knowledge sharing patterns among commercialisation staff indicated that the three of them and the head of legal services form a community of practice. As a group they display four main characteristic of a community of practice identified by Wenger (1998): mutual engagement in practice, negotiation of joint work activities, shared repertoire of practice and shared history of learning. Figure 2 illustrates this community of practice.

Figure 2. Community of practice in KTO



Impact of strategizing on learning trajectories and commercialisation practice. The KTO director and the top university manager also engaged in formulation of “new vision” which aimed to set new directions for the KTO. The “new vision” was underpinned by the assumption that “*universities are about creating knowledge and companies are about exploiting knowledge*” and therefore collaboration between academics and industry is the most appropriate approach to the exploitation/commercialisation of academic research. The KTO director engaged with the commercialisation staff, that is with the members of the community of practice. He argued that licensing is not about sales of IP but about building long term collaborative partnership. In this way he aimed to alter the understanding of licensing prevailing in this community. The interactions of the KTO director triggered learning in the community of practice. The members of the communities discussed what the “new vision” means for their work activities (negotiation of joint enterprise) and developed new understanding of competent licensing. Subsequently they have changed their marketing and licensing routines (change in repertoire of practice). They stopped relying on recommendations of academics with regard to who could be a suitable licensee and started more proactive in market research. They started identifying and approaching a number of potential licensees, rather than just one, in order to find “a partner not a buyer” (licensing manager). Also their approach to license negotiations has changed. They focused less on maximising financial gains from licensing for the university and put emphasis on building a partnership with the licensee. In summary, the direction setting practice of the KTO manager shaped the evolving understanding of practice and evolution of the repertoire of practice and instigated changes in the existing marketing and licensing routines. It is worth pointing out that the KTO director had extensive experience in commercialising research and thus could understand the dominant competence regime of the community and undermine some elements of its repertoire. He could also translate the goals of the top university managers (e.g. reduce costs of commercialisation) into goals which are closer to commercialisation practice (e.g. use licenses to build partnerships with commercial partners).

5.2 Case B

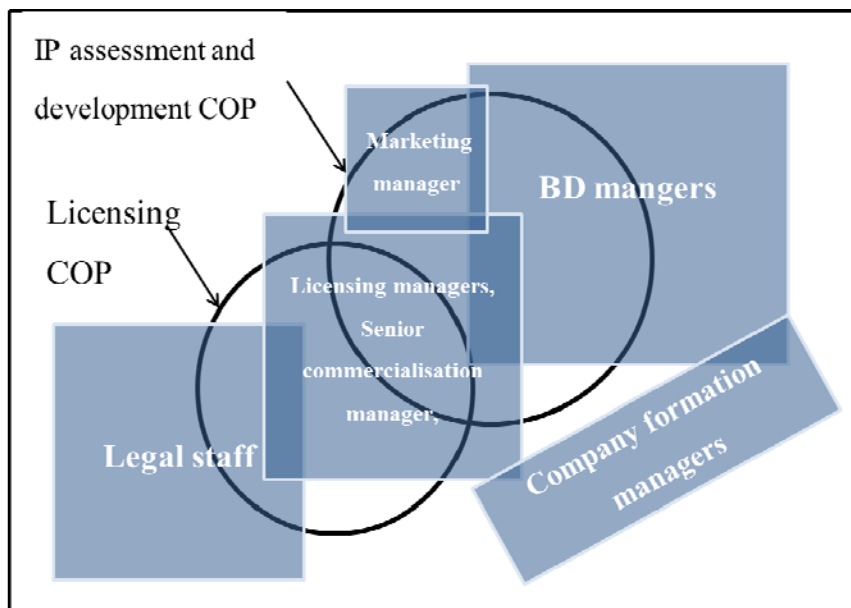
The KTO is a wholly-owned subsidiary company of research intensive university. The university is a member of the Russell Group and is located in Scotland. The university has had a unit dedicated to research commercialisation for more than 40 years.

Commercialisation practice. Commercialisation of academic research is undertaken by more than 20 individuals scattered across 4 different teams. The business development team (10 FTEs) is responsible for proactive scoping for commercialisable IP. They liaise with different schools and have close relationship with the academics. They also do filing of IPR applications (with help of external patent agents) and identification of funds for further development of inventions. They do the due diligence and build the justification for filing a patent. The decision on IPR filing is taken by a committee, comprising senior KTO’s and university’s managers and external experts. Identification of licensees could be done either by the business development staff or by licensing staff (3 FTEs). Proactive and targeted marketing is undertaken by business development and licensing managers whereas other marketing activities, such as online marketing or editing of marketing materials, are done by a marketing manager. License terms are negotiated by the licensing staff. The support for spin-out formation is provided by staff

in the company formation and incubation team (4FTEs). The legal team (6FTEs) supports business development staff (e.g. support with preparation of non-disclosure agreements) and licensing staff (e.g. support with preparation of licensing agreements or shareholder agreements).

Situated learning. The analysis of work activities and knowledge sharing patterns among commercialisation staff indicated that there are two overlapping communities of practice. Some business development managers, marketing manager, licensing managers, and senior commercialisation manager form a community of practice. This COP emerged around IP assessment and IP development practices (IPAD COP). Licensing managers and senior commercialisation manager participate in two communities – the one around IP assessment and development practices and the COP around licensing practice (LIC COP) of which some legal staff are also the members. This means that the licensing managers learn not only from business development managers, marketing manager and senior commercialisation manager but also from their legal colleagues. The available data does not allow concluding whether there is third community around company formation practice but clearly the company formation managers were not part of the other two communities. Figure 3 illustrates these communities of practice.

Figure 3. Communities of practice in KTO B



Impact of strategizing on learning trajectories and commercialisation practice. The strategic goal of the KTO B was to generate more income from industry and other sources. The KTO director and the team leaders were trying to increase “*strategic engagement with industry*” and “*to push more outward-facing, proactive marketing and business development activity*”. Here strategizing was carried out mainly by the KTO director and team leaders within the KTO. We have identified one example of how strategy influenced situated learning, which subsequently led to changes in commercialisation practice.

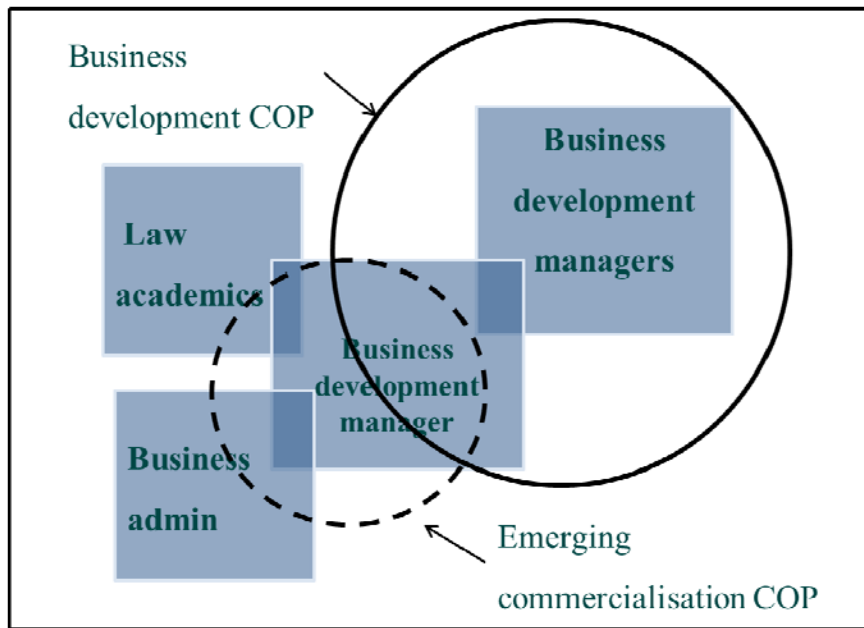
The team leaders were engaged both in strategizing and in everyday commercialisation practice and thus could act as translators. For example, the strategic direction set up by the KTO senior management were translated by the senior commercialisation manager who argued that in order to achieve the strategic goal the marketing activities needed to become more focused on demonstrating commercial value of IP. This stimulated learning within the IPAD community of practice. The COP members discussed how marketing should be approached. There were two conflicting views. The business development managers argued that marketing material can be scientific and technical because if the reader cannot understand technical language then he is not a customer anyway. On the contrary, the senior commercialisation manager and marketing manager argued that marketing materials must demonstrate value in a way which is understandable for everyone because one cannot be presumptuous about who the customer may be. Through such negotiation of how to undertake marketing they developed new understanding of what information should be included in marketing leaflets and how it should be presented. Since then marketing leaflets – an element of the repertoire of practice – became value statements and technical information were provided in follow-up packs, when appropriate. The activities of preparing marketing leaflets have been changed. This is an example of how strategizing shapes situated learning and transformation in practice. In this case team leaders were engaged in strategizing and at the same time members of the community of practice and translated strategic goals into practice and initiated learning process within the community that eventually transformed the practice. This is another example of how direction setting activities shaped evolving understanding of practice and evolving the repertoire of practice, which underpin transformations of practice.

5.3 Case C

This case is about a KTO in a teaching-orientated university, which is an internal unit within the university structure. A unit responsible for the exploitation of the University's research outputs was formed in the late 1990s.

Commercialisation practice. The commercialisation activities are carried out by the business development manager, the senior administrator and two law academics that have been temporarily seconded to the KTO to support development of the legal framework for commercialisation activities. The business development manager proactively scopes for commercialisable research outcomes, assesses IP with the help of the KTO director and liaises with external patent agents to secure protection of the intellectual property. The business development manager, the senior administrator and the law secondees work together on formation of spin-outs and start-up companies. They developed a process of “mock board meetings” which allows the academics to develop their business plan. So far the licensing and IP marketing practices has not been developed in this KTO.

Figure 4. Community of practice in KTO C



Situated learning. Two internal commercialisation staff - the business development manager and the senior administrator – learn from one another and learn together how to improve their activities and develop new activities. Since two law secondees joined the KTO a community has been emerging around commercialisation practice. The joint engagement in company formation is the main source of coherence for the emerging community. The analysis of work activities and knowledge sharing patterns among commercialisation staff indicated that there is an established community around business engagement practice which was the dominant activity of the KTO to date.

Figure 4 illustrates the emerging community of practice and the established one.

Impact of strategizing on learning trajectories and commercialisation practice. Since 2006 the KTO director has developed a calculated approach to commercialisation activities as part of the HEIF² 4 strategy. The KTO director aimed to develop internal capability to commercialise academic research as until then commercialisation was handled through the Marcia Spinner programme funded by the regional development agency. Since 2007 KTO director has employed the above mentioned business development manager and the senior administrator who dedicate part of their time to commercialisation activities. Moreover, the KTO director arranged the purchase of

²Higher Education Innovation Fund (HEIF) is allocated by the Higher Education Funding Council for England. All universities submit their HEIF strategies before allocations are made.

some tools, such as My IP and PRINCE, which evolved the way in which commercialisation staff keep records of commercialisation projects. This strategic allocation of resources enabled development of internal commercialisation practice.

The KTO director also wanted to create legal framework for commercialisation activities. The low volume of commercialisation projects did not justify creation of a new post for a legal expert and thus the KTO director arranged secondments of two law academics. They became a great source of learning for the business development manager and others. The law secondees and the business development manager have been working together on developing IP policy for the university. They engaged in numerous discussion of the content of the IP policy document in order to ensure that the policy is suitable for that particular university. They have also jointly developed a suite of templates, such as a non-disclosure agreement, a license agreement or a shareholding agreement, which will become part of the repertoire of commercialisation practice. This example shows another way in which managers can shape learning trajectories and evolution of practice. In this case the KTO director acted as a broker and connected internal staff with the external expertise. In other words, the KTO director shape evolution of mutual engagement of commercialisation staff to ensure that commercialisation practice evolves in the desired direction.

5.4 Case D

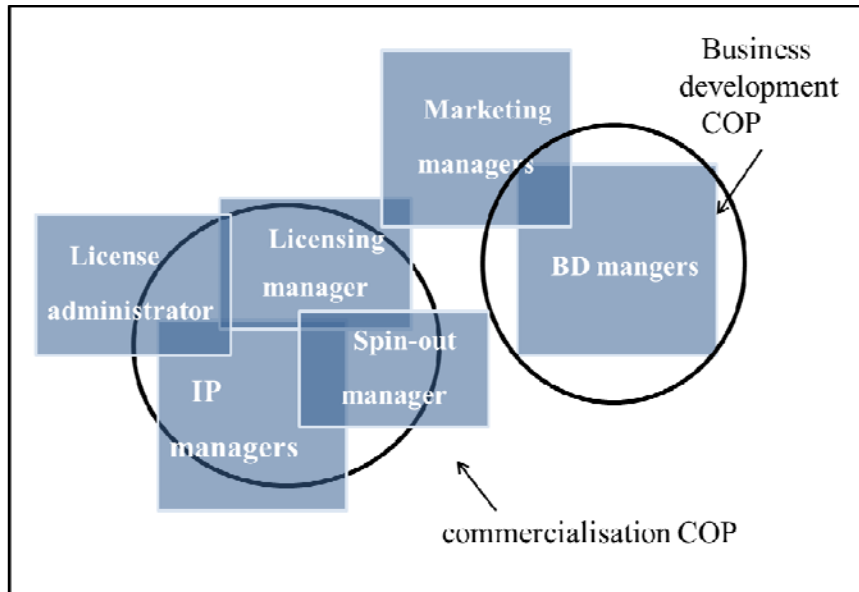
This case study is about a KTO in a research oriented university that is a member of the Russell Group and is located in West Midlands. The first unit dedicated to liaison with industry was set up in 1985. The KTO has currently a hybrid model, where an internal department and a wholly-owned subsidiary company coexist.

Commercialisation. There are about 7 KTO staff who regularly engage in commercialisation of academics research. The identification of IP is performed by Knowledge Transfer Managers who in fact are based in academic schools and are not part of the KTO. Two IP managers receive disclosures of inventions and together with the licensing manager are responsible for assessment of invention. The IP managers also manage the IPR applications and renewals. The IP managers together with the licensing manager assess the commercial viability of inventions. Proactive and targeted marketing is performed by the licensing manager whereas other marketing activities, such as online marketing or preparation of marketing materials, are done by two marketing managers. The support for company formation and management of spin-out portfolio is carried out by the newly hired spin-out manager. The licensing manager is responsible for negotiation of license deals whereas IP managers prepare the legal contracts. The post license administration of royalties is carried out by the license administrator.

Situated learning. The analysis of work activities and knowledge sharing patterns among commercialisation staff in the beginning of 2011 indicated that two IP managers, licensing manager, and the licensing administrator form a community of practice. The newly hired spin-out manager is becoming a full member of this community. There is also another community around business development practice. Interestingly the

marketing managers are not part of the COPs. Instead they learn from colleagues in University's communication department. Figure 5 illustrates the communities in the KTO.

Figure 5. Communities of practice in KTO D



Impact of strategizing on learning trajectories and commercialisation practice. One of the goals of the KTO senior management team was to improve the performance of the spin-out portfolio. A new post was created for the spin-out manager in May 2010. The new spin-out manager brought in expertise in creating and managing high quality spin-outs which he developed while working in some of the best performing KTOs in UK. The new spin-out manager engaged with the licensing manager and IP manager who have been previously responsible for company formation. They have worked together on a few spin-out projects which have started before his arrival. The new spin-out manager learned from the IP managers and the licensing manager about commercialisation practice in this KTO. At the same time the KTO director charged the spin-out manager with improving spin-out formation practice. This explicit change agenda legitimised the new employee to introduce changes. The discussions of company formation practice took place as the new spin-out manager started developing a new procedure for spin-out formation (a new element of the repertoire). He has also changed the approach to recruiting commercial management team for spin-outs and has been working on developing a fund for technology maturation and company formation. The new procedure became and the new fund will become part of the repertoire of practice. Thus arrival of the spin-out manager triggered the process of situated learning in the community of practice and transformation of company formation practice. The new spin-out manager has also brought in experience which could potentially transform the way how IP is assessed in this community. However, he was not invited to join IP assessment activities and till now his experience has not transformed IP assessment practices. This example shows another way in which managers can shape learning trajectory and transformation of practice. In this case the KTO management allocated resources to bring a new person into the KTO and in this way they shaped the mutual engagement within the community around commercialisation practice. The job design

of incumbent staff was changed as they were stripped off company formation duties and the new person was legitimised by the management to introduce changes in company formation practice.

6 DISCUSSION AND CONCLUSIONS

The findings indicate that the development of practice of organisational communities of practice can be influenced by managers and aligned with organisational strategy. This indicates that situated learning in communities of practice not only drives emergent changes (Brown and Duguid, 2001; Wenger, 1998) but also enables enacting of deliberate change, planned by organisational strategists.

It was shown that the organisational strategists can shape situated learning in a community of practice by influencing any of the three processes comprising situated learning. The examples presented by Wenger (1998) suggested that changing mutual engagement is followed by evolving understanding of enterprise and change in the repertoire. The findings, however, show that any of the processes can initiate situated learning and transformation of a community's practice. Table 1 presents three strategic practices and shows what process of situated learning was found to be shaped by each strategic practice. The managers in studied here KTOs tended to influence only one of the three processes comprising situated learning in order to induce desired changes in practice. Possibly it was enough as the members of the communities of practice did not resist changes suggested by the management. However, in cases where communities oppose to change it may be necessary that the management influence all three processes in order to align the learning trajectories with strategic objectives.

Table 1. Strategic practices shaping learning trajectories

Strategic practices	Situated learning in communities of practice		
	Evolving mutual engagement	Evolving understanding of joint enterprise	Evolving repertoire of practice
Resource allocation – hiring	✓		
Resources allocation – buying new tools			✓
Direction setting		✓	
Brokering	✓		

The study has identified three strategic practices through which organisational managers shaped learning trajectories of the communities of practice and the subsequent transformations of practices. Table 2 juxtaposes strategic practices and transformations in a community's practice in order to show that the strategic practices have different transformative power. It was found that resource allocation practices of managers can

lead to expansion of community's activities. As shown in case study D, resource allocation practice, precisely hiring new staff, can also lead to changes in existing activities of communities but only when new staff member are legitimised to introduce changes and job designs of incumbent community members are appropriately adjusted. Furthermore expansion of community's activities can be stimulated by brokering practice. However, it is conceivable that brokering practice could also lead to changes in existing activities. Transformation of practice involving change in activities seem to be best achieved when direction setting practises are used to shape learning trajectories of communities of practice. These results seem to suggest that different strategic practices may be appropriate at different stages of community's development. The direction setting practices seem to be appropriate when managers want to transform practice of mature communities which have well established ways of doing things. On the other in resource allocation and brokering practices can stimulate expansion of activities, which could be taking place both in emerging and mature communities of practice.

Table 2. Managerial strategic practices shaping transformations in a community's practice

Strategic practices	Transformations in commercialisation practice	
	Change in activities	Expansion of activities
Resource allocation – hiring	✓	✓
Resources allocation – buying new tools		✓
Direction setting	✓	
Brokering		✓

The case studies presented in this paper echo the findings of James (2007) and Macpherson and Clark (2009) who found that organisational managers can shape learning trajectories in communities of practice. My findings extend these previous studies in two ways. Firstly, I explain how different strategic practices affect processes comprising situated learning. This broadens our understanding of how managers can shape learning trajectories. Secondly, I show that through shaping learning trajectories managers instigate transformations of a community's practices, which are aligned with the organisational strategic goals. This suggests that learning in communities of practice is important for enactment of top-down planned changes in organisations. The study suggests that practice-based theorising enables reconciliation of two dominating views of organisational change; namely, bottom-up emergent change and top-down planned change. In summary, the study extends our understanding of how organisational context shapes situated learning, which was pointed out not to be sufficiently addressed in the literature (Roberts, 2006). It also make contribution to the discussion on how and why communities of practice transform their practices (Fox, 2000).

The case studies have shown that direction setting, brokering and resource allocation practices can shape learning trajectories. This however does not mean that the list of strategic practices is comprehensive. For example, controlling practices and

communicating practices (Whittington et al., 2006) or monitoring practices (Jarzabkowski, 2003) also have the potential to shape learning trajectories. Future studies will hopefully shed light on this issue.

In conclusion, the paper has shown that management's strategic practices, or organizing, can shape learning trajectories of organisational communities of practice in order to stimulate transformations in the practices that are in line with the strategic goals. Thus the situated learning not only drives emergent changes but also enables enacting deliberate change, planned by organisational strategists. Last but not least, the paper has illustrated that broadening epistemological assumptions of social learning theory is a fruitful avenue for exploration of changes in organisational practices.

REFERENCES

- Bechky BA. (2003) Sharing Meaning Across Occupational Communities: The Transformation of Understanding on a Production Floor. *Organization Science* 14: 312-330.
- Billett S. (1996) Situated learning: bridging sociocultural and cognitive theorising. *Learning and Instruction* 6: 263-280.
- Brown JS and Duguid P. (1991) Organizational learning and Communities of Practice: Towards Unified View of Working, Learning and Innovation. *Organization Science* 2: 40-57.
- Brown JS and Duguid P. (1998) Organizing Knowledge. *California Management Review* 40: 90-111.
- Brown JS and Duguid P. (2001) Knowledge and organization: A social-practice perspective. *Organization Science* 12: 198-213.
- Carlile PR. (2002) A Pragmatic View of Knowledge and Boundaries: Boundary Objects in New Product Development. *Organization Science* 13: 442-455.
- Clegg SR, Kornberger M and Rhodes C. (2005) Learning/Becoming/Organizing. *Organization* 12: 147-167.
- Delemarle A and Laredo P. (2008) Breakthrough Innovation and the Shaping of New Markets: The Role of Communities of Practice. In: Amin A and Roberts J (eds) *Community, Economic Creativity, and Organisation*. Oxford: Oxford University Press.
- Duguid P. (2008) Community of Practice then and now. In: Amin A and Roberts J (eds) *Community, Economic Creativity, and Organisation*. Oxford: Oxford University Press.
- Elkjaer B. (2003) Social Learning Theory: Learning as Participation in Social Processes. In: Easterby-Smith M and Lyles MA (eds) *The Blackwell Handbook of Organizational Learning and Knowledge Management*. Oxford UK; Malden USA, Carlton Australia: Blackwell Publishing, 38-53.
- Elkjaer B. (2009) Pragmatism - A learning theory for the future. In: Illeris K (ed) *Contemporary theories of learning: learning theorists ... in their own words*. New York USA: Routledge, 74-89.
- Feldman MS. (2000) Organizational Routines as a Source of Continuous Change. *Organization Science* 11: 611-629.
- Fenwick T. (2008) Understanding Relations of Individual-Collective Learning in Work: A Review of Research. *Management Learning* 39: 227-243.
- Fox S. (2000) Communities Of Practice, Foucault And Actor-Network Theory *Journal of Management Studies* 37: 853-867.
- Gherardi S. (1999) Learning as Problem-driven or Learning in the Face of Mystery? *Organization Studies (Walter de Gruyter GmbH & Co. KG.)* 20: 101-123.

- Gherardi S. (2000) Practice-based theorizing on learning and knowing in organizations. *Organization* 7: 211-223.
- Gherardi S and Nicolini D. (2000) The Organizational Learning of Safety in Communities of Practice. *Journal of Management Inquiry* 9: 7-18.
- Handley K, Sturdy A, Fincham R, et al. (2006) Within and Beyond Communities of Practice: Making Sense of Learning Through Participation, Identity and Practice. *Journal of Management Studies* 43: 641-653.
- James N. (2007) The learning trajectories of 'old-timers' Academic identities and communities of practice in higher education. In: Hughes J, Jewson N and Unwin L (eds) *Communities of Practice Critical Perspectives*. London: Routledge.
- Jarzabkowski P. (2003) Strategic Practices: An Activity Theory Perspective on Continuity and Change. *Journal of Management Studies* 40: 23-55.
- Johnson G, Melin L and Whittington R. (2003) Micro Strategy and Strategizing: Towards an Activity-Based View. *Journal of Management Studies* 40: 3-22.
- Justensen S. (2004) Innoversity in Communities of Practice. In: Hildreth P and Kimble C (eds) *Knowledge Networks: Innovation Through Communities of Practice*. London: Idea Group Publishing
- Lave J and Wenger E. (1991) *Situated learning: Legitimate peripheral participation*, Cambridge: University Press.
- Lundkvist A. (2004) User networks as sources of innovation. In: Hildreth P and Kimble C (eds) *Knowledge networks: Innovation through communities of practice*. York, UK: Idea Group Publishing., 106–124.
- Macpherson A and Clark B. (2009) Islands of Practice: Conflict and a Lack of 'Community' in Situated Learning. *Management Learning* 40: 551-568.
- Manville B. (2004) Building customer communities of practice for business value: Success factors profiled from SABA software and other case studies. In: Hildreth P and Kimble C (eds) *Knowledge networks: Innovation through communities of practice*. York, UK: Idea Group Publishing., 106–124.
- Marshall N. (2008) Cognitive and Practice-based Theories of Organizational Knowledge and Learning: Incompatible or Complementary? *Management Learning* 39: 413-435.
- Mittendorff K, Geijssels F, Hoeve A, et al. (2006) Communities of practice as stimulating forces for collective learning. *Journal of Workplace Learning* 18: 298-312.
- Nicolini D, Gherardi S and Yanow D. (2003) Introduction: Towards a Practice-Based View of Knowing and Learning in Organization. In: Nicolini D, Gherardi S and Yanow D (eds) *Knowing in Organizations: A Practice-Based View*. Armonk, NY: M. E. Sharpe., 3–29.
- Orlikowski WJ. (1996) Improvising Organizational Transformation Over Time: A Situated Change Perspective. *Information Systems Research* 7: 63-92.
- Orlikowski WJ. (2002) Knowing in Practice: Enacting a Collective Capability in Distributed Organizing. *Organization Science* 13: 249-273.
- Pye A and Pettigrew A. (2006) Strategizing and Organizing: Change as a Political Learning Process, Enabled by Leadership. *Long Range Planning* 39: 583-590.
- Roberts J. (2006) Limits to Communities of Practice. *Journal of Management Studies* 43: 623-639.
- Scarbrough H and Swan J. (2008) Project Work as a Locus of Learning: The Journey Through Practice. In: Amin A and Roberts J (eds) *Community, Economic Creativity and Organization*. Oxford, New York: Oxford University Press.
- Tsoukas H and Chia R. (2002) On Organizational Becoming: Rethinking Organizational Change. *Organization Science* 13: 567-582.
- Wenger E. (1998) *Communities of Practice: Learning, Meaning and Identity*: Cambridge University Press.
- Wenger E. (2000) Communities of practice and social learning systems. *Organization* 7: 225-246.

- Wenger EC and Snyder WM. (2000) Communities of Practice: The Organizational Frontier. *Harvard Business Review* 78: 139-145.
- Wesley PW and Buysse V. (2001) Communities of Practice: Expanding Professional Roles to Promote Reflection and Shared Inquiry. *Topics in Early Childhood Special Education* 21: 114-123.
- Whittington R, Molloy E, Mayer M, et al. (2006) Practices of Strategising/Organising: Broadening Strategy Work and Skills. *Long Range Planning* 39: 615-629.
- Yanow D. (2000) Seeing organizational learning: A 'cultural' view. *Organization* 7: 247-268.